LAPG 1740.2 APPENDICES

Appendix A

COLOR CODING FOR HAZARD/RISK IDENTIFICATION

SYSTEM	LEGEND	COLOR WARNING	REMARKS
1. ENVIRONMENTAL CONTROL SYSTEMS			
Air Conditioning Ducts			
Supply	A/C SPLY		
Return	A/C RTN		
Fresh Air	FR AIR		
Exhaust	EXH AIR		
Heating Ducts			
Supply	HTG SPLY		
Return	HTG RTN		
Fresh Air	FR AIR		
Exhaust	EXH AIR		
Dual Temperature Ducts			
Supply	DUAL TEMP SPLY		
Return	DUAL TEMP RTN		
Fresh Air	FR AIR		
Mechanical Ventilation			
Supply	MECH VENT SPLY		Color warning shall be applied as applicable.
Exhaust	MECH VENT EXH		Color warning shall be applied as applicable.
Hot Water Heating (Low & Med. Temp.)			
Supply	HTG SPLY_____F		Gray color warning for temperature above 200^0 F.
Return	HTG RTN_____F		Gray color warning for temperature above 200^0 F.

Appendix A

COLOR CODING FOR HAZARD/RISK IDENTIFICATION - Continued

SYSTEM	LEGEND	COLOR WARNING	REMARKS
Chilled Water Cooling			
Supply	CH WTR SPLY_____F		
Return	CH WTR RTN_____F		
Cryogenic Piping			Gray color warning for temperature over 200^0 F and under 0^0 F.
Hot Water Heating (High Temp.)			
Supply	HI TEMP SPLY_____F	Gray	Identify over 200^0 F.
Return	HI TEMP RTN_____F	Gray	
Steam Piping, Heating & Process			
Steam	STEAM_____PSI_____	Gray	Identify if above 200^0 F.
Condensate	F COND RTN	Gray	Identify if above 200^0 F.
Miscellaneous Piping			
Boiler Feed Water	BLR FD WTR_____PSI		Gray color warning for temperature above 200^0 F.
Boiler Make-up Water	BLR MK WTR		
Condenser Water In	COND WTR IN		
Condenser Water Out	COND WTR OUT		
2. Plumbing Systems			Drainage, Waste, and vent piping are used as defined in the National Planning Code.
Acid Line	ACID_____%	Blue	Insert chemical formula and concentration in percent.
Acid Waste	ACID WST		
Drinking Water, Chilled	CH DKG WTR		
Domestic Hot Water	DOM HT WTR		
Non-Potable Water	NON-POT WTR	Brown	
Sanitary Drain	SANI DRN	Brown	

Appendix A

COLOR CODING FOR HAZARD/RISK IDENTIFICATION - Continued

SYSTEM	LEGEND	COLOR WARNING	REMARKS
Stack Vent	STK VNT		
Industrial Waste	IND WSTE		Color warning shall be applied as applicable.
Water Main	WTR MAIN_____PSI		
3. Drainage Systems			
Sanitary Sewer	SANI SWR	Brown	
Storm Sewer	STRM SWR		
Combined Sewer	COMB SWR	Brown	
4. Fire Protection System			
Fire Main	FIRE MAIN_____PSI	Red	Color warning and legend not applicable to fire hydrants.
Sprinkler Piping	SPKLR SYST	Red	
Carbon Dioxide	CO_2 FIRE PROT	Red	
Alternative Gas Agents	FM 200/Inergen	Red	
5. Electrical Systems			
Lighting	ELECT LTG_____V		Indication of voltage and blue color warning for voltages 600V and above.
Power	ELEC PWR_____V		Indication of voltage and blue color warning for voltages 600V and above. All 220V and above panels shall be identified as such.

Appendix A

COLOR CODING FOR HAZARD/RISK IDENTIFICATION - Continued

SYSTEM	LEGEND	COLOR WARNING	REMARKS
6. Compressed Gas Systems			Gray color warning for line pressures of 150 PSI and above.
Compressed Air			
Shop	AIR SHOP_____PSI		
Breathing	AIR BRTHG_____PSI		
Instrument	AIR INSTR_____PSI		
Diesel Starting	AIR DSL STG_____PSI		
Oxygen	COMP GAS	Green	
Liquid Oxygen	O_2_____PSI	Green	
Carbon Dioxide	LOX_____F_____PSI	Gray	
Nitrogen Gas	COMP GAS CO_2	Gray	
	COMP GAS N_2_____PSI		
7. REFRIGERANT SYSTEMS			
Ammonia	REFRG NH_3 No. 17	Brown	
Carbon Dioxide	REFRG CO_2 No. 744	Gray	
Methyl Chloride	REFRG CH_3Cl No. 40	Yellow	
Halocarbons	REFRG No.____	Gray	Insert refrigerant number.
Sulfur Dioxide	REFRG SO_2 No. 764	Gray	
8. SECONDARY COOLANTS			
Brines			
Sodium Chloride	BRINE NaCl___%		Insert concentration in percent.
Calcium Chloride	BRINE CaCl___%		Insert concentration in percent.
Inhibited Glycols			
Ethylene	INH ETHY GLY	Yellow	
Propylene	INH PROPY GLY	Yellow	

Appendix A

COLOR CODING FOR HAZARD/RISK IDENTIFICATION - Concluded

SYSTEM	LEGEND	COLOR WARNING	REMARKS
Halocarbons			
Refrigerant No. 11	BRINE R-11	Gray	
Refrigerant No. 12	BRINE R-12	Gray	
Refrigerant No. 30	BRINE R-30	Gray	
Refrigerant No. 1120	BRINE R-1120	Gray	
9. FUEL SYSTEMS			
Aviation Gasoline	AV GAS___OCT	Yellow	Insert API Octane No.
Diesel Fuel	DIESEL FUEL	Yellow	
Jet Fuel	JET FUEL JP___	Yellow	Insert API Identification No.
Heating Fuel	FUEL OIL NO___	Yellow	Insert API Identification No.
Navy Special Oil	NAV SPCL FUEL	Yellow	
Natural Gas	NAT GAS___PSI	Yellow	
Motor Gasoline	MO GAS___OCT	Yellow	Insert API Octane No.
10. MISCELLANEOUS SYSTEMS			
Dust Collection	DUST COLL		
Laboratory Gas	LAB GAS___PSI		
Snow Melting	SNO MLTG		
Vacuum	VAC	Gray	
Lab Exhaust Systems	LAB EXH SYST		Color warning shall be applied as applicable

Appendix B

CRITERIA FOR SECURING PERMANENT STORAGE TRAILERS (GASEOUS AND LIQUID)

1. Support piers should be eight-inch by 16-inch masonry blocks, resting on a 16-inch by 16-inch concrete slab that is at least four inches thick. Pier spacing will be at four locations (two front and two back).

2. *Provide at least six 1/2-inch diameter sod-screws in soil anchor tiedowns with four near the corners and augered at least three feet in the ground. In locations where concrete exists, 3/4-inch concrete anchor bolts will be used. (Contact the SEC for details.) Turnbuckles will be used at each hold down location. In locations where asphalt exists, the material will be removed to earth level and sod-screws installed as described above.

3. A minimum spacing of at least six feet should be maintained between adjacent structures.

* This requirement is applied where the trailer size and configuration provides an unacceptable risk. This risk assessment is provided by the OSFA, OSEMA.

Appendix C

OFFICE AND/OR LABORATORY TRAILER INSTALLATION GUIDELINES

SITING REQUIREMENTS

1. Footings and piers will be installed on solid ground. This may require removal of topsoil to provide a firm and level surface.

2. Support piers will be eight-inch by 16-inch masonry blocks, double wide. Pier spacing will be 10 feet or less, center to center. Blocks will be placed on 16-inch by 16-inch by four-inch concrete slabs. Slabs are not required on asphalt or concrete surfaces four inches or greater in thickness.

3. Place trailer on piers and shim so floor is level. Shims will be wood or metal with care being taken so as not to damage masonry blocks.

4. Skirt enclosure will be provided on all trailers with exposed plumbing. Skirts on all other units are desirable but optional.

5. Provide three-foot wide landing equipped with stairs and handrails at exits. Appropriate sidewalks will be installed to provide safe walkways.

6. A minimum spacing of 25 feet will be maintained between adjacent trailer units or complexes. (A trailer unit is defined as a single trailer. A trailer complex is defined as two or more units that are designed to be tied together.) A minimum spacing of 25 feet is required between a trailer unit/complex and permanent facilities.

7. Trailer tongues will be removed or adequately covered to protect employees from walking or tripping hazards.

8. Digging Permits:

   Digging permits are required for all digging to include:

   - All tiedown penetrations.
   - All underground utility installations.
   - Topsoil removal.

   Digging permits are obtained by calling the Underground Utilities Coordinator.

OFFICE AND/OR LABORATORY TRAILER INSTALLATION GUIDELINES- Continued

9. Tiedowns:

   - Soil anchor tiedowns will be provided on all single trailer units. Tiedowns will be located at each corner and at the midpoint of the sides.
   - Soil anchor tiedowns will be used on complexes (two or more units) in a manner to protect the units from high winds. Tiedowns will be provided at each corner of the unit and on the sides at midpoints. Tiedowns should not exceed 20 feet between anchor points.
   - All penetrations for tiedowns require a LaRC "Digging Permit." (See Chapter 2, Figure 2-2.)

INTERIOR MODIFICATION

1. Walls, ceilings, and new partitions will be of noncombustible construction, that is, steel studs and sheetrock.

2. Exterior door locks will be modified to be compatible with the LaRC key system.

3. Double exits with clear access routes will be provided for each trailer unit.

4. Fire extinguisher(s) will be installed in accordance with appropriate National Fire Protection Association (NFPA) Standards.

5. Laboratory trailers shall have smoke detectors.

HEATING SYSTEMS

No trailer unit or complex will be installed with gas or fuel oil heating systems. Only electrical resistant or compressor-type heat will be used.

WATER AND SANITARY CONNECTIONS

Water and sanitary connections for LaRC trailers will be installed in accordance with the Building Officials Code of America (BOCA) Basic Plumbing Code, most recent edition.

FRESH AIR REQUIREMENTS

Fresh air requirements shall comply with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard for Ventilation for Acceptable Indoor Air Quality, most recent edition.

OFFICE AND/OR LABORATORY TRAILER INSTALLATION GUIDELINES- Concluded

RESTROOMS

1. Restrooms will be provided with not less than a 60 cfm exhaust fan.

2. Water heaters will be equipped with thermal and pressure relief devices.

ELECTRICAL INSTALLATION

The electrical utilities and the telephone service for all trailer installations will be installed in accordance with the National Electric Code (NEC), most recent edition.

Specific Requirements

1. All exposed wiring will be installed in conduit.

2. All wire will be 12 gage copper or larger.

3. All electrical fixtures and equipment will be grounded.

4. The metal shell and frame of all trailers will be bonded to a common ground.

5. Direct burial cable will not be installed above ground.

6. A fused disconnect or circuit breaker located outside the trailer will be used as a main disconnect for each trailer.

7. A local protective signaling system will be installed in all office/laboratory trailers in accordance with NFPA. The signaling system will be connected directly to the Central Fire Alarm Panel in Facility 1248. This system will be operational before the trailers are occupied.

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